

REMARKS

The Office Action dated August 11, 2005, has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1-6, 8, 10-15, 21-26, 31-36, and 39 have been amended to more particularly point out and distinctly claim the subject matter of the invention. No new matter has been added. Claims 19, 20, and 30 were previously withdrawn pursuant to a restriction requirement. Claims 1-18, 21-29, and 31-39 are respectfully submitted for consideration.

As a preliminary matter, Applicants thank the Examiner for the indication that claims 2-4, 7-9, 11-13, 16-18, 22-24, 27-29, 32-34, and 37-39 would be allowable if amended to overcome the rejections under 35 U.S.C. 112 and if made independent. Applicants respectfully submit that the amendments filed herewith are sufficient to overcome the rejections under 35 U.S.C. 112 and that all the claims of the present application recite subject matter that is neither disclosed nor suggested in the prior art of record.

Objections to the Claims

Claims 23, 24, and 39 were objected to because of various informalities. It is respectfully submitted that these objections are moot in view of the above amendments to the claims. Accordingly, it is respectfully requested that these objections be withdrawn.

Rejections under 35 U.S.C. 112

Claims 1-18, 21-29, and 31-39 were rejected under 35 U.S.C. 112, second paragraph, as indefinite. The Office Action states that the claims contain many double recitations, terms that lack antecedent basis, and unclear language. The Office Action states that the errors are too numerous to mention in every case. Applicants have amended the claims to satisfy the Office Action's request for clearer terminology. It is respectfully submitted that the amendments overcome all the enumerated and like bases for rejection, and therefore Applicants respectfully request that if additional bases of rejection are made under 35 U.S.C. 112 in a subsequent Office Action, that the subsequent Office Action be made non-final.

Rejections under 35 U.S.C. 102(b)

Claims 1, 5-6, 10, 14-15, 21, 25-26, 31, and 35-36 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,092,017 of Ishida et al. ("Ishida"). Applicants respectfully traverse this rejection.

Claim 1, upon which claims 2-9 depend, is directed to a method for predicting intake manifold pressure. The method includes obtaining a difference of values of intake manifold pressure and a difference of values of throttle opening. The method also includes obtaining a predicted difference of values of intake manifold pressure, through an algorithm of estimation with fuzzy reasoning, including fuzzy rules determined based

the difference of values of throttle opening. The method further includes adding the predicted difference of values of intake manifold pressure, to a value of intake manifold pressure, to obtain a predicted value of intake manifold pressure.

Claim 10, upon which claims 11-18 depend, is directed to an apparatus for predicting intake manifold pressure. The apparatus includes a first device for obtaining a difference of values of intake manifold pressure. The apparatus also includes a second device for obtaining a difference of values of throttle opening. The apparatus includes a fuzzy estimator receiving as inputs the difference of values of intake manifold pressure and the difference of values of throttle opening and obtaining and outputting a predicted difference of values of intake manifold pressure, through an algorithm of estimation with fuzzy reasoning, including fuzzy rules determined based on an amount of the difference of values of throttle opening.

Claim 21, upon which claims 22-29 depend, is directed to a computer readable medium having a program stored therein. The program is made to perform obtaining a difference of values of intake manifold pressure and a difference of values of throttle opening. The program is also made to perform obtaining a predicted difference of values of intake manifold pressure, through an algorithm of estimation with fuzzy reasoning, including fuzzy rules determined based on an amount of the difference of values of intake manifold pressure and an amount of the difference of values of throttle opening. The program is further made to perform adding the predicted difference of values of intake

manifold pressure, to a value of intake manifold pressure, to obtain a predicted value of intake manifold pressure.

Claim 31, upon which claims 32-39 depend, is directed to an apparatus for predicting intake manifold pressure. The apparatus includes means for obtaining a difference of values of intake manifold pressure. The apparatus also includes means for obtaining a difference of values of throttle opening. The apparatus further includes fuzzy estimator means for receiving as inputs the difference values of intake manifold pressure and the difference of values of throttle opening and obtaining and outputting a predicted difference of values of intake manifold pressure, through algorithm of estimation with fuzzy reasoning, including fuzzy rules determined based on an amount of the difference values of intake manifold pressure and an amount of the difference of values of throttle opening.

As discussed in the present specification, certain embodiments of the present invention use fuzzy rules based on an amount of difference of the variable to be predicted and that of the variable ahead of the variable to be predicted, thereby allowing control effectively containing information on a change in the variable ahead of the variable to be predicted. Additionally, certain embodiments of the present invention may eliminate noise from the data to a sufficient degree while maintaining a minimum phase delay of the data by using adaptive filters. It is respectfully submitted that the cited art of Ishida fails to disclose or suggest all the elements of any of the presently pending claims.

Therefore the prior art fails to provide the critical and unobvious advantages discussed above.

Ishida is generally directed to a parameter estimation apparatus that employs fuzzy reasoning. The parameter estimation apparatus uses as inputs intake air pressure and present throttle amount, among others. Ishida discusses using input values of various parameters. However, these input values are used to generate a single output, namely air/fuel ratio, as may be seen, for example, in Figure 12. Ishida discusses a difference between this output value and an estimated output value in the portion relating to Ishida's estimation accuracy judgment unit, starting at Col. 3 line 29 and continuing to Col. 17 line 11.

Independent claims 1, 10, 21, and 31 recite "obtaining a difference of values of intake manifold pressure and a difference of values of throttle opening" (Claims 1 and 21), "a first device for obtaining a difference of values of intake manifold pressure" and "a second device for obtaining a difference of values of throttle opening" (Claim 10), and "means for obtaining a difference of values of intake manifold pressure" and "means for obtaining a difference of values of throttle opening" (Claim 31). Thus, each of the claims recites "obtaining a difference of values of intake manifold pressure (and) a difference of values of throttle opening." Ishida does not teach or suggest these features.

Ishida, as explained above, does not teach obtaining a difference of values of intake manifold pressure and a difference of values of throttle opening. Ishida discusses only obtaining a difference of a single parameter, Air/Fuel ratio. Air/Fuel ratio is the

single output parameter of Ishida, as illustrated in Figure 12. Accordingly, even if intake manifold pressure or throttle opening were substituted for Air/Fuel ratio, Ishida would still not teach obtaining a difference of values with respect to a second parameter. Accordingly, Ishida does not teach obtaining a difference of values of intake manifold pressure and a difference of values of throttle opening. Accordingly, Ishida does not teach or suggest all of the elements of any of the pending claims.

Additionally, Ishida does not disclose the method according to the claimed invention, in which intake manifold pressure is obtained through fuzzy reasoning, using a difference of values of intake manifold pressure and a difference of values of throttle opening. As explained above, Ishida focuses on the difference in a single parameter: Air/Fuel ratio. To the extent that intake manifold pressure is discussed in Ishida, it is not discussed as being obtained through fuzzy reasoning, and not obtained using both a difference of values of intake manifold pressure and a difference of values of throttle opening. Accordingly, Ishida does not disclose the method according to the claimed invention, in which intake manifold pressure is obtained through fuzzy reasoning, using a difference of values of intake manifold pressure and a difference of values of throttle opening.

Allowable Subject Matter

Claims 2-4, 7-9, 11-13, 16-18, 22-24, 27-29, 32-34, and 37-39 were indicated as containing allowable subject matter but dependent on rejected base claims. In view of

the arguments and amendments above, it is respectfully submitted that the base claims should be allowed. Accordingly, it is respectfully submitted that claims 2-4, 7-9, 11-13, 16-18, 22-24, 27-29, 32-34, and 37-39 are currently in condition for allowance.

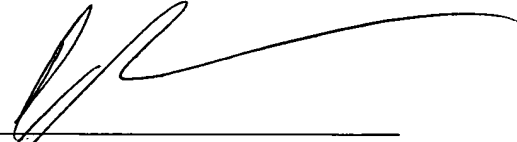
Conclusion

In view of the arguments and amendments above, it is respectfully submitted that claims 1-18, 21-29, and 31-39 recite subject matter that is neither disclosed nor suggested in the cited art. Thus, it is respectfully requested that all of claims 1-18, 21-29, and 31-39 be allowed, and this application be passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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